

REMARKS

The independent claims (52 and 60) that were on appeal have been rejected under 35 U.S.C. § 102(b) for lacking novelty in view of a newly cited reference, Chu, U.S. Pat. 5,582,623 ("Chu"). Applicants will discuss Chu first, since Chu provides the context for the current amendments to the claims.

The Examiner points to col. 14, lines 40-45 of Chu for describing forming a layer of a cathode mixture on a removable substrate, removing the substrate, and bonding the substrate to a current collector. Applicants agree, but have some additional remarks on Chu.

Chu does not indicate that the removable substrate approach described in col. 14 provides any particular benefit as compared with applying the cathode mixture directly onto a current collector. The removable substrate approach is not Chu's preferred approach. The preferred approach -- discussed at col. 4, lines 33-39 and used in all of Chu's examples -- involves applying the cathode mixture directly to the current collector. Thus, Chu provides no guidance concerning when, or why, the removable substrate approach should be used.

Claims 52 and 60 as amended relate to forming a multiple layer stack that is incorporated into an electrode. See paragraphs 39-41 of the specification for a description of embodiments of these methods. Each layer is formed from a cathode mixture. Claim 52 specifies that the cathode mixture includes an electrode active material and a binder, and claim 60 specifies that the cathode mixture includes an electrode active material and a solvent. The claims also require that the first layer includes a substrate that is removed and that the first layer and the second layer are layered onto each other.

The methods covered by claims 52 and 60 provide a way to make a cathode having a relatively high loading of cathode active material that is relatively thick with minimal defects such as cracks. As a result, the performance of the cathode can be enhanced.

Chu does not describe making cathodes from multiple layers of a cathode mixture. Moreover, and in any event, Chu does not teach any benefit to using a removable substrate that would motivate a person of ordinary skill in the art to use a removable substrate in connection with making a cathode including multiple layers of cathode active material. Thus, claims 52 and 60, and dependent claims 53-59, 61, and 63-72 are novel and unobvious in view of Chu.

New dependent claims 63-72 add other features of the embodiments described in paragraphs 29 and 35-44 of the specification. These features also are not disclosed or suggested by Chu.

New independent claim 73 is directed to a method that includes (a) blending a solvent and a binder, (b) blending an electrode active material and a conductive aid, (c) combining the blends from (a) and (b) to form a cathode mixture, (d) forming a layer of the cathode mixture on a removable substrate, (e) removing the substrate, and (f) incorporating the first layer into a battery electrode. The advantage of step (b) in particular is discussed in the specification:

[0031] Referring to Fig. 1, the electrode material and the conductive aid are pre-blended (step 24) separately from the binder and the solvent, which are also pre-blended (step 26). Without wishing to be bound by theory, it is believed that pre-blending enhances contact between the electrode material and the conductive aid to provide enhanced electrochemical performance.

Chu does not disclose or suggest steps (a)-(c) generally or, more specifically, in connection with forming a cathode mixture that then is used on a removable substrate. Thus, claim 73 and dependent claims 74 and 75 are novel and unobvious in view of Chu.

Hamamoto et al., U.S. Pub. 2002/0168576 A1, which was relied on in combination with Chu in rejecting some of the dependent claims under 35 U.S.C. § 103, does not add anything of significance to Chu.

Applicants submit that the claims are in condition for allowance and such action is requested.

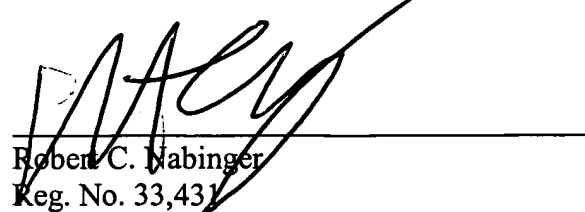
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